Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-9 (canceled)

10. (currently amended): A wireless transmit/receive unit (WTRU) comprising:

~~(a)~~ an automatic gain control (AGC) circuit which receives and adjusts the gain of a communication signal, the AGC circuit being controlled by a gain control signal;

~~(b)~~ an insertion phase variation compensation module which continuously counteracts the effects of phase offsets introduced into the communication signal by the AGC circuit, based on the gain control ~~signal;~~ signal, the insertion phase variation compensation module comprising:

a first input configured to receive a digital in-phase (I) signal component;

a second input configured to receive a digital quadrature (Q) signal component;

first and second multipliers coupled to the first input;

third and fourth multipliers coupled to the second input;

a first adder coupled to the first and third multipliers, the first adder configured to output a complex I signal component; and

a second adder coupled to the second and fourth multipliers, the second adder configured to output a complex Q signal component;

~~(c)~~ a look up table (LUT) ~~electrically~~ coupled to the first, second, third and fourth multipliers ~~insertion phase variation compensation module~~; and

~~(d)~~ a modem ~~electrically~~ coupled to the AGC circuit, the first and second adders, and the LUT, wherein the modem receives the complex ~~in phase (I) and quadrature (Q)~~ I and Q signal components ~~from the insertion phase variation compensation module~~, the modem outputs the gain control signal, based on the complex I and Q signal components, to the AGC circuit and the LUT, and the LUT provides estimates of the phase offsets to the first, second, third and fourth multipliers ~~insertion phase variation compensation module~~ as a function of the gain control signal that the LUT receives from the modem.

11. (currently amended): The WTRU of claim 10 further comprising:

~~(e)~~ a receiver which receives the communication signal from the AGC circuit and outputs analog I and Q signal components; and

~~(f)~~ an analog to digital converter (ADC) which receives and converts the analog I and Q signal components to the digital I and Q signal components.

12. (previously presented): The WTRU of claim 11 wherein the insertion phase variation compensation module receives the digital I and Q signal components from the ADC and outputs the complex I and Q signal components which have different phase characteristics than the digital I and Q components.

13. (previously presented): The WTRU of claim 10 wherein the modem comprises a processor which calculates how much power is input to the ADC.

14. (original): The WTRU of claim 11 wherein the insertion phase variation compensation module receives the digital I and Q components from the ADC and alters the phase characteristics of the digital I and Q components as a function of the gain control signal.

Claim 15 (canceled)

16. (previously presented): The WTRU of claim 10 wherein the provided estimates of the phase offsets include a Sin function and a Cos function of a phase offset, x.

17. (currently amended): The WTRU of claim 16 wherein the ~~insertion phase variation compensation module has a real, Re, input associated with a digital in phase (I) signal component and an imaginary, Im, input associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs an~~ complex I signal component has ~~having~~ a phase that is adjusted in accordance with the following function: (Cos(x) × Re) - (Sin(x) × Im).

18. (currently amended): The WTRU of claim 16 wherein the ~~insertion phase variation compensation module has a real input, Re, associated with a digital in phase (I) signal component and an imaginary input, Im, associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs a~~

complex Q signal component has ~~having~~ a phase that is adjusted in accordance with the following function: (Sin(x) × Re) + (Cos(x) × Im).

19. (currently amended): An integrated circuit (IC) comprising:

~~(a)~~ an automatic gain control (AGC) circuit which receives and adjusts the gain of a communication signal, the AGC circuit being controlled by a gain control signal;

~~(b)~~ an insertion phase variation compensation module which continuously counteracts the effects of phase offsets introduced into the communication signal by the AGC circuit, based on the gain control ~~signal;~~ signal, the insertion phase variation compensation module comprising:

a first input configured to receive a digital in-phase (I) signal component;

a second input configured to receive a digital quadrature (Q) signal component;

first and second multipliers coupled to the first input;

third and fourth multipliers coupled to the second input;

a first adder coupled to the first and third multipliers, the first adder configured to output a complex I signal component; and

a second adder coupled to the second and fourth multipliers, the second adder configured to output a complex Q signal component;

~~(c)~~ a look up table (LUT) ~~electrically~~ coupled to the first, second, third and fourth multipliers ~~insertion phase variation compensation module~~; and

~~(d)~~ a modem ~~electrically~~ coupled to the AGC circuit, the first and second adders, and the LUT, wherein the modem receives the complex ~~in phase (I) and quadrature (Q)~~ I and Q signal components ~~from the insertion phase variation~~

~~compensation module~~, the modem outputs the gain control signal, based on the complex I and Q signal components, to the AGC circuit and the LUT, and the LUT provides estimates of the phase offsets to the first, second, third and fourth multipliers ~~insertion phase variation compensation module~~ as a function of the gain control signal that the LUT receives from the modem.

20. (currently amended): The IC of claim 19 further comprising:

~~(e)~~ a receiver which receives the communication signal from the AGC circuit and outputs analog I and Q signal components; and

~~(f)~~ an analog to digital converter (ADC) which receives and converts the analog I and Q signal components to the digital I and Q signal components.

21. (previously presented): The IC of claim 20 wherein the insertion phase variation compensation module receives the digital I and Q signal components from the ADC and outputs the complex I and Q signal components which have different phase characteristics than the digital I and Q components.

22. (previously presented): The IC of claim 19 wherein the modem comprises a processor which calculates how much power is input to the ADC.

23. (original): The IC of claim 20 wherein the insertion phase variation compensation module receives the digital I and Q components from the ADC and alters the phase characteristics of the digital I and Q components as a function of the gain control signal.

Claim 24 (canceled)

25. (previously presented): The IC of claim 19 wherein the provided estimates of the phase offsets include a Sin function and a Cos function of a phase offset, x.

26. (currently amended): The IC of claim 25 wherein the ~~insertion phase variation compensation module has a real, Re, input associated with a digital in phase (I) signal component and an imaginary, Im, input associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs an~~ complex I signal component has ~~having~~ a phase that is adjusted in accordance with the following function: (Cos(x) × Re) - (Sin(x) × Im).

27. (currently amended): The IC of claim 25 wherein the ~~insertion phase variation compensation module has a real input, Re, associated with a digital in phase (I) signal component and an imaginary input, Im, associated with a quadrature (Q) signal component and, based on the estimates of the phase offsets provided by the LUT, the insertion phase variation compensation module outputs a~~ complex Q signal component has ~~having~~ a phase that is adjusted in accordance with the following function: (Sin(x) × Re) + (Cos(x) × Im).

Claims 28-31 (canceled)

Amendments to the Specification:

Please change the title to:

METHOD AND APPARATUS FOR CONTINUOUSLY COMPENSATING FOR PHASE VARIATIONS INTRODUCED INTO A COMMUNICATION SIGNAL BY AUTOMATIC GAIN CONTROL ADJUSTMENTS